PB85-214013

Superfund Record of Decision (EPA Region 6) Old Inger Site, Louisiana, September 1984

(U.S.) Environmental Protection Agency
Washington, DC

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EPA

Superfund Record of Decision:

Old Inger Site, LA

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16. ABSTRACT

The Old Inger hazardous waste site is located midway between the cities of Baton Rouge and New Orleans in Ascension Parish, Louisiana. The site was utilized as an oil refinery and oil reclamation plant from 1967 to 1978. Approximately 41,600 cubic yards of waste oils, and heavily contaminated soils, sludges, and sediments plus 2.5 million gallons of highly contaminated surface water and 7.5 million gallons of slightly contaminated swamp water remain on-site. The waste materials include oil contaminated with hazardous petrochemicals, various oil additives, and oil combustion products. In addition, ten million gallons of slightly contaminated ground water containing hazardous constituents are present in the shallow aquifer.

The cost-effective remedy includes: closing and sealing of an on-site well; pumping and treatment of the shallow ground water aquifer via carbon adsorption; carbon adsorption tre. tment and discharge offsite of contaminated water; in-situ containment and capping of slightly contaminated soils; and on-site land treatment of heavily contaminated soils and sludges. Decisions on the need for corrective action for the intermediate aquifer, the level of cleanup for the shallow aquifer and the contaminated wood remedy were deferred. The capital cost for the selected alternative is $3,174,000 and annual O&M costs are estimated to be $10,000.
(Key Words are on attached page.)

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
Record of Decision Old Inger Site, LA Contaminated media: gw, sw, soil, sludge, wood, Key contaminants: oils, sludges, VOCs, solvents, pesticides, metals		

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Old Inger Site, LA

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ROD ISSUES ABSTRACT

Site: Old Inger, Louisiana

Region VI

AA, OSWER
Briefing: August 17, 1984

SITE DESCRIPTION

The Old Inger hazardous waste site is located midway between the cities of Baton Rouge and New Orleans in Ascension Parish, Louisiana. The site was utilized as an oil refinery and oil reclamation plant from 1967 to 1978. Approximately 41,600 cubic yards of waste oils, and heavily contaminated soils, sludges, and sediments plus 2.5 million gallons of highly contaminated surface water and 7.5 million gallons of slightly contaminated swamp water remain on-site. The waste materials include oil contaminated with hazardous petrochemicals, various oil additives, and oil combustion products. In addition, ten million gallons of slightly contaminated ground water containing hazardous constituents are present in the shallow aquifer.

SELECTED ALTERNATIVE

The cost-effective remedy includes: closing and sealing of an on-site well; pumping and treatment of the shallow ground water aquifer via carbon adsorption; carbon adsorption treatment and discharge offsite of contaminated water; in-situ containment and capping of slightly contaminated soils; and on-site land treatment of heavily contaminated soils and sludges. Decisions on the need for corrective action for the intermediate aquifer, the level of cleanup for the shallow aquifer and the contaminated wood remedy were deferred. The capital cost for the selected alternative is $3,174,000 and annual O&M costs are estimated to be $10,000.

ISSUES AND RESOLUTION

1. On-site land treatment was selected as the cost-effective remedial alternative for the heavily contaminated soils and sludges. The land treatment system will be designed, constructed and operated in compliance with RCRA Part 264, Subpart M. Treatability studies will be conducted during the design phase as specified in Subpart M to assure proper degradation. The feasibility of land treatment

KEY WORDS

- Land Treatment
- RCRA Part 264, Subpart M
- Treatability Studies

ISSUES AND RESOLUTION	KEY WORDS
must be approved by the Regional Administrator before the remedial alternative is implemented. Final guidelines from OSW for land treatment treatability studies were not available at the time the ROD was signed. Therefore, tne studies conducted at the Old Inger site will be performed in accordance with information available at the time of design.	
2. The proposed State water discharge standards for the on-site treatment system were determined from other hazardous waste facilities in Louisiana, not from site-specific conditions. In the future, more focused water quality requirements should be considered.	. Discharge Standards
3. Petroleum materials found onsite are not excluded under CERCLA Sections 101(14) and 104(a)2 because such materials are inter-mixed with various hazardous substances.	. CERCLA Sections 101(14) and 104(a)2 . Petroleum Wastes
4. The selected remedial action will require filling of on-site wetland area (swamp). In general, Section 404 permits are not required for response actions under CERCLA. In addition, the Corps of Engineers determined that discharge into this wetland would be authorized by the nationwide permit established in 33 CFR 330.4(a)(2). An assessment of the wetlands by EPA found that filling will result in eliminating these areas but will improve the general environment of the site.	. Clean Water Act Section 404 . COE . Wetlands
5. Because of the site's proximity to the Mississippi River levee, excavation would be restricted to prevent levee failure during cleanup. Although excavation of the heavily contaminated soils and sludges is not expected to affect the stability of the levee, the COE will monitor excavation activities.	. COE . Excavation . Levees

ISSUES AND RESOLUTION	KEY WORDS
6. The selected remedy provides that excavated areas containing slightly contaminated soils be capped with river silt dredged near the site, an impermeable clay layer and vegetative cover. This is in compliance with the technical requirements of RCRA Part 264.310. Institutional controls will also be used to assure against any potential for direct contact.	. Capping . Institutional Controls . RCRA Part 264
7. A carbon adsorption system will be used to treat the contaminated shallow ground water. Data from treatability studies will be used to optimize the treatment process. Decisions on the level of cleanup for this shallow aquifer are being deferred. However, treatment of the shallow ground water aquifer is projected to reach background levels or maximum concentration limits (MCL) unless an alternate concentration limit (ACL) is granted. Also, the decision concerning the necessity of cleanup of the intermediate aquifer has been deferred.	. Alternate Concentration Limit . Background Level . Carbon Adsorption . Ground Water Contamination . Maximum Concentration Limit . Treatability Studies
8. The wood on-site may be considered to be a hazardous substance. If it is determined to be hazardous it may be sent to a RCRA incinerator. Otherwise, the Assistant Administrator will make a determination concerning the wood's final disposal.	. CERCLA Hazardous Waste Definition . Contaminated Wood

RECORD OF DECISION
REMEDIAL ALTERNATIVE SELECTION

Site: Old Inger, Ascension Parish, Louisiana

DOCUMENTS REVIEWED

I am basing my determination primarily on the following documents describing the analysis of cost-effectiveness of remedial alternatives for the Old Inger site:

- Old Inger Remedial Investigation, D'Appolonia, October, 1983
- Old Inger Feasibility Study, D'Appolonia, May, 1984
- Summary of Remedial Alternatives Selection, August, 1984
- Staff summaries and recommendations

DESCRIPTION OF SELECTED REMEDY

- Closing and sealing of an ungrouted onsite well
- Pumping and treatment of the shallow ground water aquifer via carbon adsorption.
- Carbon adsorption treatment and discharge offsite of contaminated fluids (onsite surface water).
- In situ containment and capping of slightly contaminated soils.
- Onsite land treatment of heavily contaminated soils and sludges.

DECLARATIONS

Consistent with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the National Contingency Plan (40 CFR part 300), I have determined that the onsite carbon adsorption treatment of contaminated liquids and onsite land treatment of heavily contaminated soils and sludges, and other measures described above, as an interim remedy effectively mitigates and minimizes the most significant risks to public health and the environment and limits future risks of migration of contaminated ground water. Decisions on the need for corrective action for the intermediate aquifer, the level of cleanup for the shallow aquifer, and on disposal of the contaminated wood are being deferred. The State of Louisiana has been consulted and agrees with the approved remedy.

The selection of the land treatment alternative is conditioned upon a final determination by the Regional Administrator, based on the design phase pilot studies, that the waste can be completely degraded, transformed, or immobilized in the treatment zone.

In addition, I have made the following determinations concerning the enactment of the selected remedy:

- The action being taken is appropriate when balanced against the availability of Trust Fund monies for use at other sites.
- The cost-effective remedy does comply with other environmental regulations, except to the extent that final decisions on certain aspects of the remedy are being deferred.

9/25/84
Date

Lee M. Thomas
Assistant Administrator
Office of Solid Waste and Emergency Response

SUMMARY OF REMEDIAL ALTERNATIVE SELECTION
OLD INGER
AUGUST, 1984

SITE LOCATION AND DESCRIPTION

The Old Inger hazardous waste site is located about 4.5 miles north of Darrow, Louisiana, between Louisiana Highway 75 and the Mississippi River levee. It is approximately midway between Baton Rouge and New Orleans, Louisiana (Figure 1). The site is within the Mississippi River floodplain but is protected by the levee system.

The land near the site is devoted to agricultural uses and therefore is sparsely populated. The population within a one mile radius is approximately 200 people. The closest residence is approximately 0.3 mile south of the site, on the east side of Highway 75. The major drinking water aquifer for the local area lies approximately 120 feet below the site.

There are four distinct features or areas to the Old Inger site. They are the surface tankage, the waste lagoons, the swamp and the buried waste area (Figure 2). The surface tankage includes nine oil storage tanks ranging in capacity from 37,500 to 225,000 gallons, a cracking tower, a separating tower and their respective containment areas. There are two lagoons, one 0.8 acre and the other 0.07 acre. The swamp is approximately 7.5 acres in size. Approximately one-half acre of the southeastern corner of the swamp has been filled in with solid refuse and construction debris. The buried waste oil pit occupies the south central portion of the site.

SITE HISTORY

The Old Inger site began operations in 1967 as an oil refinery and was obtained by Old Inger Oil Refinery in 1976 to be used as an oil reclamation plant for refinery wastes.

It remained active in this function until March 1978 when a large spill occurred, contaminating the surrounding area. The facility was purchased shortly thereafter with the intention of cleaning up the site. However, the new owners of the equipment found it to be uneconomical and abandoned the site in 1980. The Louisiana Environmental Control Commission formally declared the site abandoned in 1981.

When the site was operated, waste oils were brought to the site by barge and by truck. Waste oils were processed in the largest cracking tower and then stored on the site. Final products were generally removed by truck. The lagoons were used for disposal of waste sludges, oils, and surface water. Occasionally, liquid from Lagoon 1 would be siphoned into the swamp to help maintain storage capacity of the lagoon. The liquid was siphoned from the liquid fraction between the floating sludges and oils

and the bottom sludges. Some oily materials were discharged into the swamp during the siphoning process. On at least one occasion, a feedstock line broke and discharged a substantial quantity of oil into the swamp.

Storage tanks were used for the following purposes:

Tanks	Use
9 & 10	Feedstock
6,7, & 8	Bottom products (fuel oil)
5	Surface water, unusable (heavy) feedstock, etc.
2 & 3	Top products (light oil)
11	Top products (lightest oil)

Tanks 1 and 4 either never existed or were removed prior to site abandonment in 1980. Interviews with people familiar with operations at the Old Inger site indicate that the waste oils were processed by:

- Heating the heavier oils to decrease viscosity and breakdown emulsions and,
- Mixing them with used lubrication oils, light oils, and perhaps spent solvents.

The reprocessed oils were shipped by truck or barge and sold for fuel oil. Some oils may have been received from or shipped to other oil reclamation plants in Texas or Florida.

EPA Lead Activities

An emergency action was completed in July 1983 by EPA to prevent Lagoon 1 from overtopping its levee. The contaminated water, 330,000 gallons in all, was pumped into Tanks 5, 6, and 9. There was also some stabilization work done on the lagoon dike in this action. An IRM was obligated September 14, 1984 to remove the liquid in these tanks and pump down lagoon 1. This will allow storage capacity in the case there is another emergency, and allows storage for remedial actions.

CURRENT SITE STATUS

The Old Inger site investigation was a multi-disciplined approach consisting of soil borings, ground water sampling, surface water sampling (tanks, lagoons, streams) and air monitoring.

Stratigraphy

Subsurface soils consist mainly of clayey silts and sandy silts that range in permeability between 1.3×10^{-4} cm/sec to 4.1×10^{-8} cm/sec. The upper 10 to 15 foot zone contained more

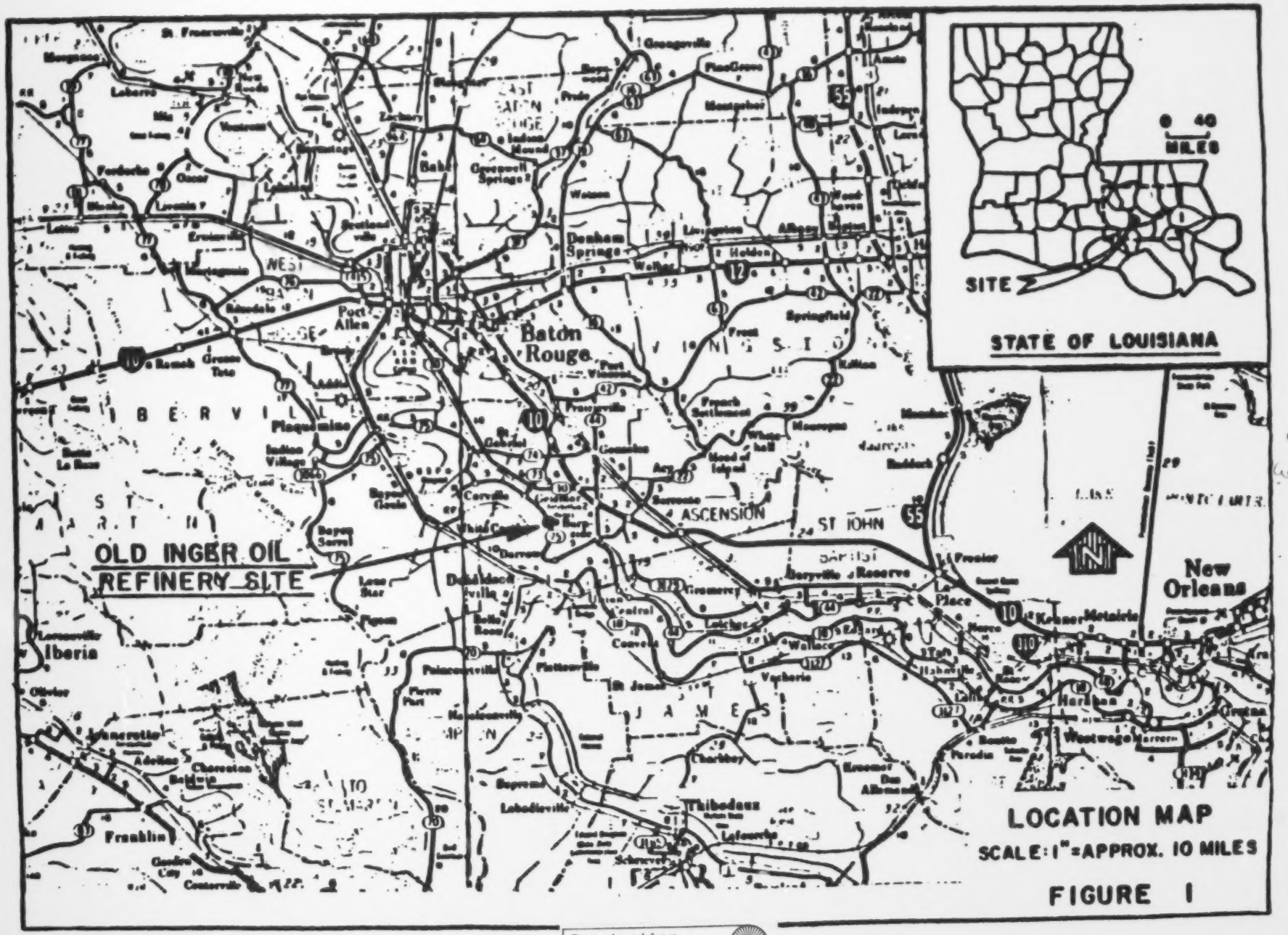

FIGURE 1

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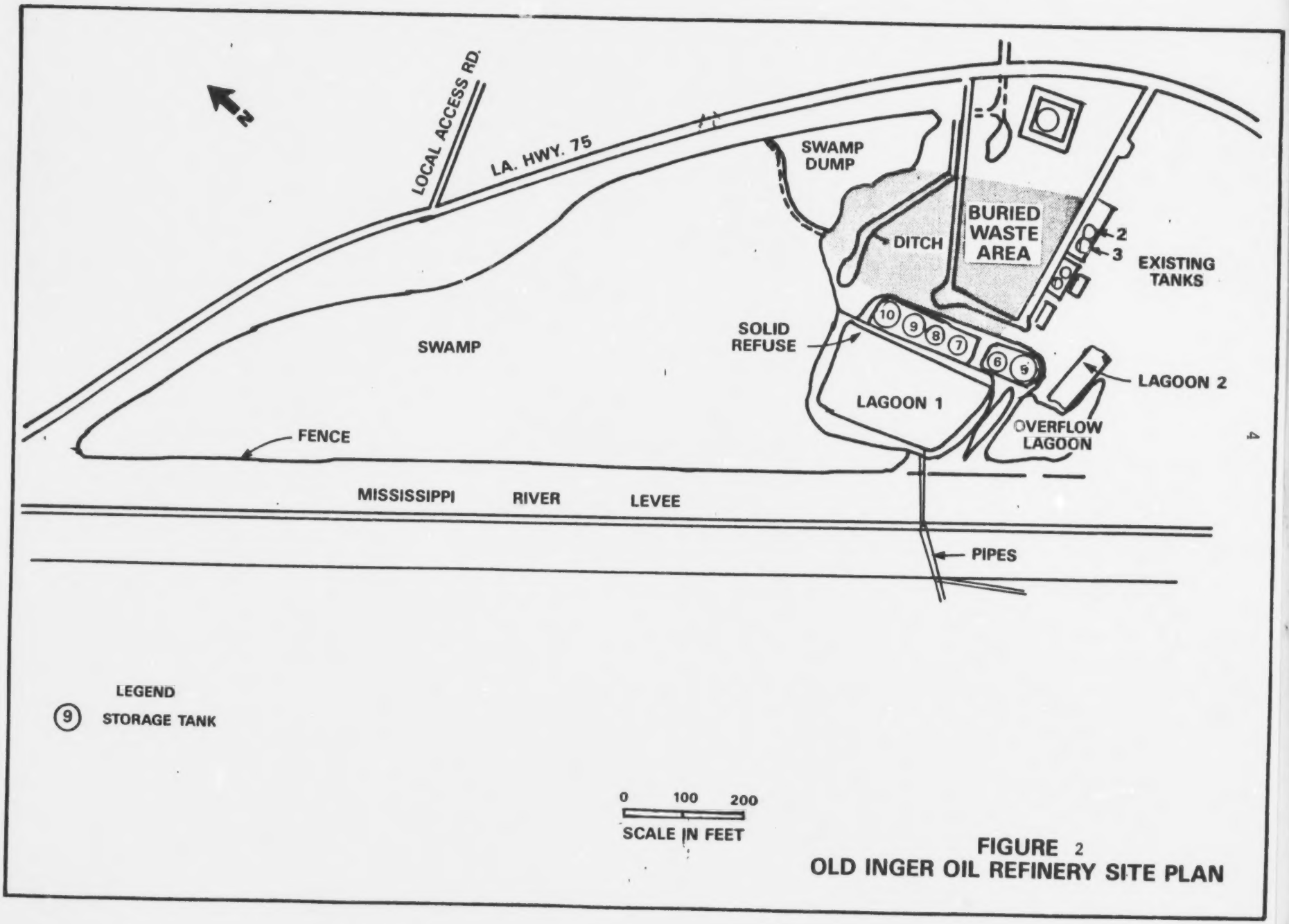

FIGURE 2
OLD INGER OIL REFINERY SITE PLAN

clay than the deeper strata; however, layers of clay and sand were encountered throughout the geological cross-section. A high variability in the lateral and vertical distribution of soil types was observed. This is a common characteristic for fluvial-derived sediments.

The swamp overlies a relatively impermeable substratum. A shallow silty lens, starting at about six feet below surface, pinches out to the north and south. This lens contains the shallow aquifer. This lens underlies the buried waste area, lagoon, and portions of the swamp. A deeper sandy silt stratum, starting at approximately 45 feet below surface, is 60 to 70 feet thick and contains the intermediate aquifer. The next aquifer below this intermediate aquifer is the alluvial aquifer, which starts at approximately 120 feet below the surface. Several wells in the area use this aquifer as a drinking water source. The next aquifer below the alluvial is the Gonzales formation, a major drinking water source for the regional area. Lagoon 1 and the swamp presently induce a significant downward vertical gradient on these aquifers. The river has a slight influence on ground water movement.

Wells

An inventory of wells within about three miles of the site, as compiled by the Louisiana Geological Survey, indicates the existence of 40 wells. The depth of these wells' average intake is approximately 300 feet.

Hazardous Compounds Present

Table 1 shows the hazardous substance quantity estimate for the site. There are 41,600 cubic yards (cy) of heavily contaminated soils (visibly contaminated) and sludges. There are 70,000 cy of slightly contaminated soils. There are 2.5 million gallons of heavily contaminated (suspended solids) surface water in the tanks and lagoons and 7.5 million gallons of slightly contaminated surface water in the swamp area. The shallow aquifer contains ten million gallons of slightly contaminated ground water.

An IRM was obligated September 14, 1984. This IRM will remove approximately 330,000 gallons of contaminated water from the tanks and 260,000 gallons from the lagoon.

The contaminants found on the site include hazardous substances which are not petroleum (including crude oil or its fractions) and thus are not subject to the Superfund exclusions under CERCLA §101(14) and 104(a)(2). These substances are believed to result largely from the presence of oil additives and products of combustion. To the extent that material onsite includes petroleum and petroleum fractions, they are contaminated with the hazardous substances described above, and those hazardous compounds cannot be addressed separately.

Table 2 gives the predominant organic and inorganic contaminants that are found in the various waste streams with the concentration ranges discovered. These constituents are common to all the wastes found in each of the four critical site areas.

The waste at the site contains quantities of hazardous constituents which potentially have toxic, carcinogenic, mutagenic or teratogenic effects on humans or other life forms. These include:

- Trace heavy metals
- Napthalene class of hydrocarbons
- Phenols
- Benzene
- Benz (a) anthracene, and
- Benzo (a) pyrene

Table 3 compares concentration ranges of selected hazardous compounds found onsite with USEPA ambient water quality criteria.

TABLE 1
TOTAL WASTE ESTIMATES
OLD INGER, LOUISIANA

	SLUDGES	HEAVILY CONTAMINATED SOILS	SLIGHTLY CONTAMINATED SOILS	HEAVILY CONTAMINATED WATER	SLIGHTLY CONTAMINATED WATER	SLIGHTLY CONTAMINATED ~ GROUND WATER	CONTAMINATED WOOD
TOTAL VOLUME	7,600 cu. yds.	34,000 cu. yds.	70,000 cu. yds.	2.5 million gallons	7.5 million gallons	10.0 million gallons	5,000 tons
PNA's	10	10	1	1	.01	0.001	-
Benzene	1,000	1,000	10	1,000	10	0.01	
Total Aromatics	10,000	10,000	100	10,000	100	1	
Total Cl. Alkanes	100	100	10	100	10	0.1	
Phenols	10,000	1,000	10	1,000	1	0.001	
Phthalates	10,000	1,000	10	1,000	1	0.001	
Zinc	1,000	1,000	1,000	1,000	10	1	
Nickel	1,000	1,000	1,000	100	10	1	
Chromium	100	100	100	100	1	0.1	
Pesticides	100	100	10	100	1	0.001	

All concentrations are in parts per million (ppm). These represent conservative (high) estimates for treatability purposes. Estimates of actual levels are one order of magnitude less.

TABLE 2
WASTE CHARACTERIZATION
OLD INGER

Table 2

	Waste (1) Oils (mg/kg)	Oily (2) Sludges (mg/kg)	Oily Soils (3) and Sediments (mg/kg)	Oily(4) Water (mg/l)
Volatiles				
Benzene	2-175	0-2	*	0-2
Chlorobenzene	0-75	*	*	*
Ethylbenzene	0.2-350	0-15	0.02	.002-4
Tetrachloroethylene	0-30	*	*	*-.004
Toluene	0.2-20	0-2	0.05	.002-1
Trans-1,2-dichloroethylene	0-600	0-0.03	*	0.2
1,1,1-Trichloroethane	0-20	*	*	*
Trichloroethylene	0-10	*	*	0-0.04
Metals				
Cadmium	25	15	1	0.01
Chromium	125	40	5-30	0-5
Copper	50	30	10	0-5
Lead	2	1	20	2
Silver	15	10	0.8	*
Acid Compounds				
4-nitrophenol	*	50	*	*
phenol	*	*	*	0.05
Base Neutral Compounds				
Acenapthene	0-50	0-30	*	0.1
Anthracene	1-275	0-6	10-80	0.4
Benzo (a) anthracene	0-40	*	0-25	*
Benzo (a) pyrene	0-50	*	*	*
3,4-Benzo fluoranthene	*	0-10	*	*
Benzo (ghi) perylene	*	0-4	*	*
Bis (2-ethylhexyl) phthalate	1-20	0-25	0-50	*
Chrysene	1-140	0-50	0-50	*
Fluoranthene	0-250	0-40	10-70	0.2
Fluorene	1-175	0-65	0-50	0.3
Naphthalene	0-275	0-130	*	0.5
Phenanthrene	2-1,000	0-175	15-175	0.8
Pyrene	1-250	0-40	10-80	0.2

1) Waste oils are primarily restricted to tanks and lagoons.
2) Oily sludges refer to buried waste and lagoon waste.
3) Pertains to swamp wastes and buried waste area.
4) Water contained within lagoons and swamps.

NOTE:
* Not detected

All zero values refer to compounds discovered but below detection limits.

Table 3: Comparison of Onsite Concentration Ranges With Ambient Water Quality Criteria

Compound	USEPA Ambient Water Quality Criteria [A]	Onsite Ground Water Concentration Range (Shallow aquifer)	Onsite Surface Water Concentration Range (Lagoon 1 and Swamp)
Benzene (carcinogen)[B]	0.66 ug/l	3.0 - 180 ug/l	0 - 2,000 ug/l
Ethylbenzene	1.4 mg/l	1.1 - 4.4 ug/l	2 - 4,000 ug/l
Toluene	14.3 mg/l	* - *	2 - 1,000 ug/l
Chromium III	170 mg/l	* - 0.02 ug/l(Cr_T)	0 - 5,000 ug/l(Cr_T)
Chromium VI (carcinogen)[C]	50 ug/l		
Tetrachloroethylene (carcinogen)[B]	0.8 ug/l	1.5 - 8.7 ug/l	* - 4 ug/l

NOTE:

* Not detected

All zero values refer to compounds discovered but below detection limits

A/ November 28, 1980, Federal Register

B/ Values based on 10^{-6} cancer risk

C/ Drinking water standard

Contaminated Fluids

The geohydrological investigation showed that the shallow ground water aquifer is most contaminated in the vicinity of the buried waste area and the large lagoon. Levels of volatile organics approach 500 ppb in the ground water zone immediately above the shallow aquifer in this area. With regards to lateral migration in the shallow aquifer, the main direction of flow is to the east. At the eastern boundary benzene was detected at a concentration of 0.18 ppm.

The intermediate aquifer is very slightly contaminated with concentrations ranging from 1.8 ppb to the maximum concentration level of 10 ppb (volatile organics). Lateral contamination is restricted to the site boundaries within this water bearing strata.

The deeper alluvial aquifer is a local drinking water source. Ground water samples taken at wells from nearby residences found no contamination. This aquifer was not sampled within the lateral limits of the site. There is no reason to suspect that any contaminants have reached the lower aquifer, the Gonzales formation.

From a surface water aspect, the lagoons are the most contaminated. The levels of volatile organics within the swamp water do not exceed 20 ppb of volatile organics. These low concentrations can be attributed to dilution, volatilization and biodegradation. Analyses of surface water sampled offsite in a culvert near Louisiana Highway 75 indicated non-hazardous organics near detection limits.

The priority pollutant analytical testing results indicate that all of the onsite tanks, except Tank 11, contain oily water, oil, or a solvent-water mixture characterized by hazardous constituents generally in excess of ambient water quality criteria. Benzene, chlorobenzene, ethylbenzene, toluene, and chlorinated ethanes and ethylenes were the primary volatile hazardous petrochemicals detected. In addition to these compounds, some pesticides, to include endrine aldehyde and 4,4 DDT, with concentrations less than 50 ppm were detected in the tanks (highest concentrations) and containment areas.

Heavily Contaminated Soil, Sludges and Sediments

The greatest subsurface contamination that is soil related is near the lagoons and buried waste areas. A layer of oily material underlies portions of these areas to a depth of one to three feet. Visible contamination extends as far down as six feet near the buried waste oil cell.

Lagoon 1 contains sludge layers. Portions of the swamp are covered by approximately an inch or so of oil residue and a wax-like surface.

Swamp sediments and offsite stream sediments contain trace concentrations (near detection limits) of hazardous constituents.

Other Contaminated Material

The northern six acres of the swamp contain trees that have waste residue exposed on the lower three feet of their trunks. More data must be collected to determine the appropriate method for treating or disposing of this wood. There are approximately 5,000 tons of contaminated wood present onsite.

The southeastern corner of the swamp contains up to twenty-five 55 gallon drums. All of these drums are partially buried and the contents have been released.

The northeast end of the lagoon contains solid refuse including at least forty-seven 55 gallon drums. All of the drums discovered onsite were empty. The buried waste area contains exposed pilings and buried construction material.

Air

Organic vapor measurements showed that volatile wastes are contained in the onsite tanks and the buried waste area. While concentrations in excess of 10,000 ppm of volatile organics were measured at some boreholes and tank inlets, no significant levels (in excess of five ppm) were ever measured in the breathing zone except in the immediate vicinity of the boreholes and tank inlets (benzene and toluene).

Mississippi River Levee

The Remedial Investigation documented that the site's proximity to the Mississippi River levee could restrict excavation depths. The initial findings indicated that slopes no steeper than two horizontal to one vertical have a satisfactory factor of safety against failure during a cleanup period.

Another concern caused by proximity to the river is the long-term (100 year) stability of the bank. A bank failure one and one-half miles downstream occurred in August 1983, resulting in a levee setback. A review of the circumstances leading to that failure was undertaken by the U.S. Army Corps of Engineers (Corps) and was to be completed in August 1984. Discussions with the project officer in the Vicksburg, Mississippi, office and bank stabilization engineers in the New Orleans office have confirmed that the forces which acted to produce the downstream failure are not present at the Old Inger site.

Figure 3 shows the segment in question and clearly illustrates that the river is cutting a severe channel at the downstream location, extending over 100 feet deeper than the channel at Old Inger. Such channel cutting is caused by the

river traversing a relatively straight course to just below Old Inger where, upon turning, it narrows and deepens, producing heavy scouring during peak floods. The scouring of the cutbank in turn results in unstable slopes. The bank at the downstream site had been the subject of Corps revetment work since the early 1970's. Several revetment failures occurred during the 1970's.

As Figure 3 shows, the channel at the Old Inger site is fairly wide, shallow and straight with the deepest portion being on the opposite side (west bank). No bank revetment projects are being considered for the east bank. The Corps of Engineers has stated that this east bank section will continue to be stable for the next 50 to 100 years; however any future upstream or downstream changes could conceivably produce channel cutting at the Old Inger location. Stability of the site in relation to the river is important to any technology for long-term onsite disposal.

POTENTIAL PATHWAYS

- The offsite migration of onsite contaminated surface water through natural drainage
- The offsite migration of contaminated shallow ground water.
- The vertical migration of contamination to the substratum aquifers and subsequent movement offsite.
- Direct contact (human or animal) with onsite waste oils sludges, heavily contaminated soils, water, or vegetation.

The eventual receptors for surface water runoff is Lake Maurepas. Runoff from the site moves by natural drainage until it ultimately intercepts Bayou Conway then Bayou Manchac and finally Lake Maurepas. None of these bodies of water supply drinking water but can be considered important natural resource areas.

The surface of the lagoon is slightly elevated (less than 5 feet) above the surrounding land and the swamp to the west. Protection berms surround the swamp area east of the tanks and the onsite tanks and lagoons, which contain oil-contaminated waters. The berms are not considered adequate for long-term containment of the rainfall associated with a storm of 10-year frequency. Consequently, the site is considered to pose the risk of contaminating offsite drainageways in the event of berm failures or overtopping.

As recently as February 1984, waste oils sheens have been observed overflowing dikes separating the contaminated swamp and

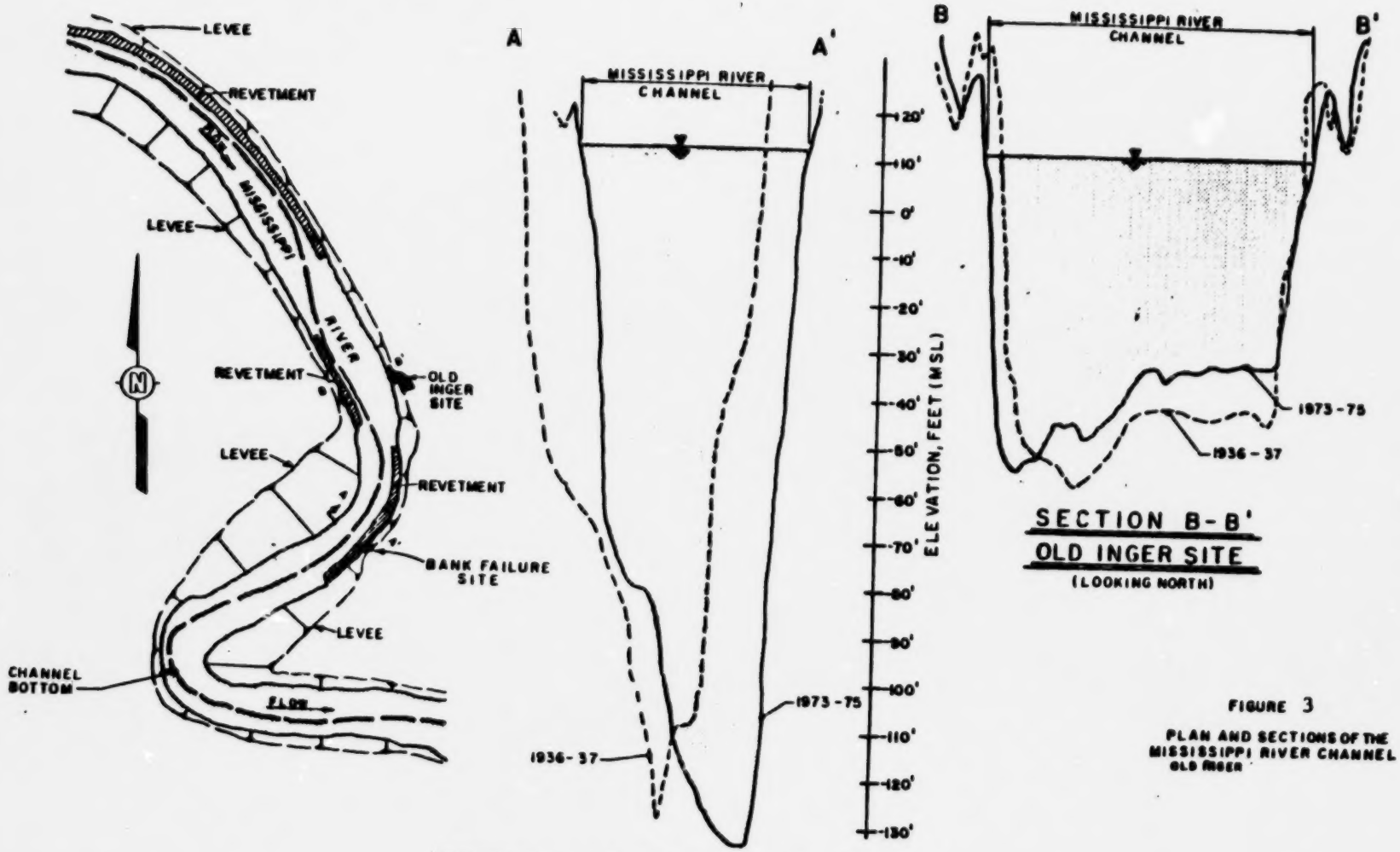

FIGURE 3

PLAN AND SECTIONS OF THE MISSISSIPPI RIVER CHANNEL OLD INGER

the western drainage ditch alongside of Highway 75. These overflows result from heavy rainfall and the degradation of the dikes. Low levels of contaminant migration have been documented with the sampling of soils in the drainage ditch to the east of the site. A few priority pollutants were found near detection limits, and heavy metals (chromium, nickel, zinc) were found in the 10 to 100 ppm range. These levels indicate the potential for greater contamination if preventive action is not taken. The receiving drainage water directly across Highway 75 to the east is used by cattle.

The receptors for ground water contamination are the Mississippi River, the alluvial aquifer and the Gonzales aquifer, all of which are important drinking water sources. The Mississippi is a drinking water source for New Orleans. The alluvial aquifer and the deeper Gonzales aquifer are used by residents near the site. The Gonzales is almost exclusively used by the larger cities within the immediate vicinity of the site such as Baton Rouge.

A shallow permeable silty lens intercepts the waste in the lagoon and the buried waste cell. The ground water flow underneath this strata as with the deeper strata is slightly dependent on the Mississippi River stage and more due to mounding caused by surface water in lagoon 1 and the swamp. During low flow stages of the river, lateral ground water flow is towards the Mississippi, during high stages the flow reverses to the east. The lateral gradients in the deeper water bearing strata are even more dependent on river stage because of better connection with the river. The lower strata also consist of more permeable material.

Ground water flow is not just restricted to the lateral direction at the Old Inger site; vertical flow exists as evidenced by the introduction of contaminants in the intermediate aquifer. Like the lateral gradient, the vertical gradient between upper and lower aquifers is slightly dependent on the river stage and more due to lagoon and swamp mounding. Sometimes the gradient is upward (high river level) but for the better part of the year the water flows downward.

The Remedial Investigation determined that volatile organics, (benzene and ethylbenzene) at the part per billion level, have migrated downward to a depth of 75 feet within the deposits underlying the site. The shallow aquifer and intermediate aquifer are the predominant potential pathways for further migration. While neither of these aquifers are used as drinking water sources they do serve as pathways for downward migration, either through direct connection to the alluvial aquifer or through man-made connection.

An abandoned water well was identified as a possible pathway for contamination between the shallow and deeper aquifers at the site. It is believed that the annular space around the water well casing was never grouted. If such is the case, there would be enhancement for flow along the sidewall.

The presence onsite of systems of tree roots systems, burrow holes and pilings (buried waste area) extending into the upper sand lens, and the non-grouted water well annular space extending down to the alluvial aquifer, indicate vertical pathways exist for the migration of surficial and lagoon wastes.

The Remedial Investigation established that hazardous priority pollutants are present at dangerous levels in site waste, oils, and sludges, as well as in heavily contaminated soils water, and vegetation. Contact with these waste streams poses a definite risk to human health, as does ingestion of contaminants by wandering cattle. The presence of hazardous substances also threatens the local ecology and indigenous wildlife species and the typical rural uses of adjacent lands such as ranching and farming.

Upon disturbance, volatile organic compounds such as benzene and toluene have been detected in breathing zones at levels which pose a significant health risk.

The greatest exposure potential to the public and environment from hazardous substances at Old Inger would occur if the site were to flood and spread contamination over a large area. Even though the site is protected by the levee system a failure in the levee is possible. Such was the case with the previously mentioned bank failure one and one-half miles downstream the from site. The river was at low river stages then or the site would have flooded. Assurance cannot be given by the Corps that this will not happen again.

ENFORCEMENT

The Inger Oil Site was leased in 1967 as a location for a small oil reclaiming operation which was eventually abandoned in 1978. It is known that there were three owners/operators prior to Inger Oil, with some other owners possibly existing. There is some confusion concerning ownership of the refinery when the overland contaminated water release occurred. Based on results of a June 16, 1981, Environmental Control Commission hearing, notice letters were sent to the owners of land actually leased by Inger Oil and to heirs of the property not leased to Inger Oil, but affected by spills. Prior owners and operators were also notified along with parties that may have been involved with activities at Inger Oil. Region 6 has identified 14 potentially responsible parties. As of August 1984, Region 6 has determined that none of the potentially responsible parties are willing or capable of performing or financing remedial activities.

ALTERNATIVES EVALUATION

Remedial Objectives

The following objectives were developed following the data evaluation collected during the Remedial Investigation:

Pathway	Objective
Onsite heavily contaminated surface water	Prevent/minimize migration
Onsite slightly contaminated surface water	Prevent/minimize migration
Onsite ground water (shallow aquifer)	Prevent/minimize migration
Offsite ground water (intermediate aquifer, alluvial aquifer)	Prevent/minimize impact
Onsite heavily contaminated soils and sludges	Prevent/minimize migration
Onsite slightly contaminated soils	Prevent/minimize migration

As previously mentioned, air measurements indicated no significant concentration levels of hazardous compounds exist except in a few areas, therefore, no remedial action is required for the air.

Alternative Considered

The following procedures, prescribed by the National Contingency Plan (NCP), were followed to develop and evaluate applicable alternatives.

- Identification of potentially applicable technologies or remedial response actions [40 CFR 300.68 (d)]
- Screening of technologies to identify viable response actions [40 CFR 300.68 (g)]
- Compiling of complementary technologies and actions into alternative remedial plans [40 CFR 300.68 (g)]
- Screening the resultant alternative plans [in accordance with 40 CFR 300.68 (h)] to narrow the number of options

Initial Screening

Subsequent to their identification, the potential technologies were screened to identify response actions by applying the following criteria:

- Capability of satisfying remedial objectives
- Environmental Performance
- Technical Performance

Contaminated Fluids

Contaminated fluids include the heavily (2.5 million gallons) and slightly (7.5 million gallons in swamp) contaminated surface water and the ten million gallons of contaminated ground water in the shallow aquifer. Although not highly contaminated, the swamp water was included because all of the remedies for disposing of the heavily contaminated soils and sludges involve excavation (thus drainage) in the swamp area.

Based upon the screening process the following three alternatives were considered for the contaminated fluids:

- Activated Sludge
- Carbon Adsorption
- Deep Well Disposal

A no action alternative was also considered.

The activated sludge was eliminated from further consideration based on the inability of the method to deal efficiently with waste variability. At Old Inger there is a nonuniformity of waste waters in regard to chemical constituents. A small-scale system could be seriously disrupted by microbial intolerance to variations.

Heavily Contaminated Soil and Sludges

Heavily contaminated soil and sludges include all heavily contaminated soil, sludges, and buried oil layers. The decision was also made to include the offsite ditch sediments, based on the fact they may become more contaminated during future remedial actions, even though they were classified as slightly contaminated during the Remedial Investigation.

Based upon the screening process the following four alternatives were considered for the heavily contaminated soil and sludges:

- In situ treatment (stabilization/solidification, capping)
- Onsite landfill
- Offsite disposal
- Onsite land treatment

A no action alternative was also considered.

The in situ treatment was eliminated from the above list because of its inability to meet the environmental performance criteria based on laboratory tests performed. The solidification process may be adequate in fixing the heavy metals but would not immobilize all of the organics and, therefore, would not prevent leachate formation. A collection system could be installed to intercept the leachate, but to be totally effective the wastes would have to be excavated to prepare the grade. A slurry wall could be used in lieu of a leachate collection system to prevent horizontal offsite migration. It would not, however, eliminate the threat of downward contaminant migration. Excavation depths required for the slurry wall may cause a problem with levee stability. For these reasons a slurry wall was not considered.

DETAILED DESCRIPTION OF REMAINING ALTERNATIVES

After the initial screening process, the following alternatives were evaluated in greater detail:

Contaminated Fluid Remedy

- Carbon adsorption
- Deep well disposal

Heavily Contaminated Soils and Sludges

- Onsite landfill
- Onsite land treatment
- Offsite disposal

The no action alternatives were also evaluated further. The following is a description of each alternative.

Treatment Alternatives for Contaminated Fluids

Carbon Adsorption

The carbon adsorption system will consist of the following unit processes:

- Pretreatment
  - neutralization
  - equilization
  - bulk filtering
- Primary treatment
  - reduction of suspended solids
- Secondary treatment
  - reduction of dissolved contaminant

Treatability studies on collected contaminated fluid samples, performed during the Feasbility Study, concluded that the waste streams were treatable via carbon adsorption.

The design of an activated carbon system, including pretreatment and primary treatment, has been discussed with several suppliers. However, several existing uncertainties in the waste profile prevent some design specifications from being developed at this time. The handling of the granular activated carbon has not been addressed; however, recycling, landfill, or land treatment are viable options.

In order to adequately protect public health and the environment, all water discharged from the site will meet, at a minimum, the following standards:

- Biochemical Oxygen Demand <30 ppm
- Total Suspended Solids <30 ppm
- Chemical Oxygen Demand <150 ppm
- Oil and Grease <15 ppm
- Total Organic Priority Pollutant <100 ppb

These limits have been utilized by the State water quality agency in issuance of an NPDES permit for a hazardous waste treatment facility, and as limitations on discharge from other hazardous waste sites. These limits are consistent with Clean Water Act requirements. Discharge of this level of contaminants is not expected to interfere with maintenance of adequate water quality.

The primary waste sources that poses a threat to the public health and the environment are in lagoon 1, the swamp, and the shallow aquifer. Because of the high concentrations of hazardous compounds detected in the shallow aquifer, some level of treatment must be provided to reduce this contamination source. The degree of contaminant reduction required in this aquifer is not yet completely resolved. In the course of evaluating whether an alternate concentration limit (ACL) is appropriate for the less contaminated intermediate aquifer, EPA will determine whether some level of cleanup other than background or maximum concentration levels (MCL) levels is appropriate for the shallow aquifer.

Fifty million gallons of contaminated fluid may need to be treated due to all remedial action activities (including the slightly contaminated water in the swamp, runoff, etc.). Treated water can be directly discharged to the east, via existing drainage to Bayou Conway, Bayou Manchac, and into Lake Maurepas, or to the west, over the levee to the Mississippi River. Discharge rates are estimated to be about 200 gallons per minute. Considering the site configuration, a discharge to the natural drainage is preferrable. From initial discussions with the Louisiana Department of Environmental Quality (LDEQ) Water Pollution Control Division personnel, it has been determined that such a discharge would be acceptable.

Deep Well Disposal System

A deep well disposal system would consist of the following processes:

- Collection
- Storage
- Transportation to permitted facility
- Disposal

The disposal facility would be required to have an underground injection permit.

Treatment Alternatives for Heavily Contaminated Soils and Sludges

The following elements are common for each of the remaining alternatives (except for no action):

- Contaminated fluid cleanup
- Collection of heavily contaminated waste
- In situ containment of waste remaining onsite
- Well sealing
- Long term ground water monitoring
- Land use restrictions

Contaminated Fluid Cleanup

The method for this element has been presented under the contaminated fluid remedy described previously.

Waste Collection

Heavily contaminated soils, sludges, and contaminated fluids must be collected. These waste can be readily collected through conventional, cost-effective means such as excavation and pumping. Section 6.1 of the Feasibility Study described the collection mechanisms for each waste area. A further determination will be made by the AA whether the contaminated wood will be collected and burned in an onsite air curtain, recycled, recovered, disposed or otherwise treated in a manner consistent with Subtitle C of RCRA. The empty drums will be transported offsite.

In situ Containment

Collecting the heavily contaminated soils will expose the slightly contaminated soils. Excavated areas where slightly contaminated soils remain will be backfilled with river silt that is dredged from an adjacent area. These excavated areas onsite will be covered with a relatively impermeable clay cap (minimum permeability of 1.0×10^{-5} cm/sec). A vegetative soil cover would overlie the clay cap. This cap will meet the technical requirement of 40 CFR Part 264.310 and will eliminate the threat of direct contact and will reduce infiltration thus providing adequate protection to public health and environment.

The onsite landfill and onsite land treatment alternatives involve the construction of an operable unit above an excavated area. The closure requirements for these alternatives will be discussed in the following description sections.

Well plugging

To further secure the site it will be necessary to close and seal the onsite waterwell and plug all nonessential monitor wells to eliminate possible pathways for vertical migration. The pilings in the buried waste area will be cut and properly sealed or removed and the remaining space sealed, depending on field conditions.

Long Term Ground Water Monitoring

There are twelve monitoring wells presently onsite which could be used for long-term ground water monitoring. The wells selected for monitoring will be sampled semi-annually for the contaminants of concern to assure against offsite ground water migration. The onsite landfill and onsite land treatment alternatives will require additional monitoring.

Land Use Restrictions

To assure against any potential for future waste migration or direct contact, land use restrictions will be placed on the site. The State of Louisiana will assure the enforcement of these restructions in the operation and maintenance special conditions.

Onsite Landfill

This alternative involves the design of an onsite landfill in full compliance with RCRA technical requirements (40 CFR Part 264 Subpart N).

Due to the high water table at the site, a secure landfill would have to be constructed above the present surface elevation in order to meet RCRA requirements. The location (swamp area) chosen for the landfill overlies a relatively impermeable substratum. The final elevation of the landfill would be four feet higher than the levee. The landfill will incorporate the following requirements of RCRA:

- Cap
- Gas collection system
- Leachate collection/monitoring system
- Dual liner
- Post-closure

Onsite Land Treatment

The land treatment system will be designed according to RCRA technical requirements (40 CFR Part 264 Subpart M). These regulations require three major criteria be met. The following describes each criteria separately:

The first requirements is that studies must be done to show that the waste is biodegradable in a land treatment environment. Bench studies were conducted in the feasibility phase whereby sludge from Lagoon 1 was added to soil at a 10% loading rate. After two months the waste had biodegraded 60% or to a 4% rate of loading. More degradation studies are planned in the design phase that will be used to define the dimensions of the treatment zone and project the total degradation amounts.

The next requirement specified by the regulations is that at least three feet of unsaturated zone must exist between the bottom of the treatment zone and the seasonal high water table. This stipulation cannot be met for the proposed swamp and location unless fill material is utilized. A minimum of eight feet of fill would be required. It is proposed to drain the swamp and remove and stockpile the heavily contaminated soil and sludges. Runoff from the treatment area will be diverted to collection ponds at the south end of the site. Run on to the site will be diverted around the treatment area into collection ditches.

Heavily contaminated soils, sludges, and primary wastewater treatment residuals will be applied to the land treatment area. Application will take place approximately every six months. The whole process will take from two to four years depending upon climatic conditions.

The last requirement as stated in the regulations is monitoring of the unsaturated zone (both soil and soil pore liquid monitoring). The unsaturated zone is monitored to ensure that the waste is being properly degraded in the treatment zone and that unacceptable levels of leachate are not migrating downward. Additional monitoring will be required on the following elements: waste, ground water, runoff water, and air.

After the treatment operations have been succesfully concluded, further closure and post-closure activities will be implemented. These include ground water monitoring, remedying any metal overload, preparation of a final surface, and a vegetative covering of the land treatment area. Post-closure care will be necessary for 30 years unless it is demonstrated that hazardous constituents in the treatment zone are not significantly increased over background levels.

The storage of collected waste will be in accordance with the technical requirements of 40 CFR Part 264 Subpart L.

Offsite Disposal

Contaminated soils and sludges can be transported offsite for disposal at a RCRA permitted commercial hazardous waste landfill facility. There are two such facilities within 50 miles of the site, Rollins Environmental in North Baton Rouge, and BFI in Livingston. These facilities are not lined. If this alternative was selected, lined landfills would also be evaluated for disposal. The transfer of waste will involve prior solidification, loading and hauling to the facility.

Hazardous waste transportation regulations require that sludges and semi-solids be solidified, so that there are no liquids present and covered before being transporting in a trailer. Testing completed during the Feasibility Study examined several possible solidification agents for use in achieving a cost-effective workable or "haulable" state. Based upon test data, kiln dust is the recommended agent.

A local trucking firm will be contracted to transport solidified wastes to the RCRA facility. Routes will be predetermined and drivers will be required to check back once they have arrived. Once at the site drivers will follow procedures established in conjunction with the facility for determining waste quantity and bringing it to the appropriate discharge point.

All wastes transferred to the offsite landfill will meet the requirements for manifesting set forth in 40 CFR Part 262, Subpart B for generators and 40 CFR Part 263, Subpart B, for transporters.

A contingency plan will be established for possible emergencies which may occur during transit. The plan will include responses for truck breakdowns, accidents, and spills.

DETAILED EVALUATION OF REMAINING ALTERNATIVES

The alternatives remaining and common components were evaluated in detail according to the following criteria:

- Technical
- Environmental
- Cost

Treatment Alternatives for Contaminated Fluids

From a technical and environmental standpoint, the contaminated water treatment using carbon adsorption and deep well disposal alternatives are essentially equal. Both technologies are proven. Less design work would be required for deep well disposal as compared to a carbon adsorption system. The carbon adsorption system would dictate that careful consideration be given the capacity limits and system loading factors. Once operating, properly treated water leaving the site will be below the State's effluent discharge limits.

In respect to scheduling, the carbon adsorption is more flexible since transportation and injection disposal facilities may not always be available on short notice or during times that disposal may be required unless adequate storage is provided. The carbon adsorption unit will be onsite during the cleanup and can be used on an "as needed" basis.

Both the carbon adsorption and deep well disposal meet the remedial objectives established for long-term and short-term surface discharges from the site. For carbon adsorption, reduction of temporary site discharges to effluent standards and long term discharges to background should produce no added risk to human health or the environment. This effluent will follow natural drainage ultimately to Bayou Conway, Bayou Manchac, and Lake Maurepas, none of which supplies drinking water. Concentrations at Bayou Conway during cleanup could conceivably reach the 1 to 10 ppb range of volatile organics during temporary periods of continuos discharge if stream flows are low. Institutional constraints are comparable for both methods chosen for the cleanup of contaminated liquids. The deep well disposal would require that the facility in which the water is taken be permitted according to underground injection regulations. Discharge of treated water would meet the effluent discharge standards.

A substantial cost difference exists between the carbon adsorption and deep well injection alternatives. On a per unit cost basis, deep well injection is $.20/gal (based on local transportation and disposal cost) and carbon adsorption is $.10/gal (proposed system cost). Different quantities of water to be disposed will vary with the remedial alternatives selected for disposing of sludges and contaminated soils. The following is the cost comparison for each such alternative.

	Carbon Adsorption	Deep Well Disposal
Onsite landfill	$ 431,000	$ 862,000
Offsite landfill	$ 381,000	$ 762,000
Onsite land treatment	$ 481,000	$ 962,000

Treatment Alternatives for Heavily Contaminated Soils and Sludges

The environmental and technical criteria as applied to the alternatives for disposing of contaminated solid waste are much more complicated than those for the contaminated fluid cleanup.

Because of the complexity, discussion will be limited to only those criteria where substantial differences exist between the three alternatives. The common components applicable to each alternative were previously discussed.

Technical Criteria Comparison

For technical reasons, the offsite landfill alternative is less difficult to implement compared to the other alternatives because of limited design requirements. The land treatment alternative would prove the most difficult to implement since careful attention would have to be given to each waste application.

Scheduling is critical to all three alternatives because of climatic factors. Excavation can only proceed during low river stages. All earth moving would be done during dry weather. Again, because of the critical manner in which waste must be applied, the land treatment is most restricted in this regard.

The onsite landfill and onsite land treatment system will require ground water monitoring during operation and other post closure activities. The offsite disposal remedy will require only long-term ground water monitoring.

Environmental Criteria Comparison

In regard to the environmental criteria, the three alternatives are comparable. All will accomplish the short-term reductions in offsite migration. A major difference between the three alternatives pertains to the design life criteria. The land treatment system is a more permanent remedy that degrades the organic waste, although metals may remain immobilized in the soil. Recycling and/or recovery was not considered for the metals because of the low concentrations (background or detection level) and amounts discovered onsite. The landfill systems are containment units which must be maintained indefinitely if they are to operate properly. For the onsite landfill the Mississippi river becomes a major concern due to levee stability.

Neither direct contact nor air emissions are perceived to be a problem for any of the alternatives. Direct contact potential for all alternatives will be minimized with a clay cap and land use restrictions. An air monitoring program will be implemented during operation of the land treatment system to assure safety.

Except as noted in the "Consistency with Other Environmental Laws and Regulations" section, all the alternatives would meet the relevant RCRA technical requirements and, therefore institutional constraints are comparable in this respect.

Cost Criteria Comparison

Table 4 gives detailed costs for waste collection activities and Table 5 gives detailed costs for in situ containment, both common to each of the three heavily contaminated soils and sludge alternatives. The in situ containment costs are based upon filling all site areas, including excavation areas, to an elevation of 25 foot mean sea level (MSL) with fill material brought to the site. The waste collection cost assumes the contaminated wood will be burned onsite.

TABLE 4
WASTE COLLECTION COSTS
OLD INGER, LOUISIANA

AREA	DESCRIPTION	QUANTITY	EQUIPMENT ($1,000)	LABOR ($1,000)	TOTAL COST ($1,000)
Lagoon 1	Top Sludge	4,800 c.y.	28.8	14.4	43.2
	Liquid	1.5 M gal	7.2	3.6	10.8
	Bottom Sludge	2,400 c.y.	14.4	7.2	21.6
	Soil	3,600 c.y.	3.6	1.8	5.4
	Dewatering (6 mos)	1.0 MM gals.	4.8	2.4	7.2
	Drums	—	10.0	5.0	15.0
	Subtotal		68.8	34.4	103.2
Buried Waste Area	Surface Fill	4,700 c.y.	7.1	4.7	11.8
	Buried Oil	4,900 c.y.	29.4	14.7	44.1
	Soil	5,700 c.y.	8.6	5.7	14.3
	Dewatering (3 mos)	0.5 M gals.	3.6	1.8	5.4
	Pilings	1,000 ft	1.0	1.0	2.0
	Subtotal		49.7	27.9	77.6
Swamp	Water	7.4 M gals.	36.0	18.0	54.0
	Dewatering (1 mo)	1.5 M gals.	7.2	3.6	10.8
	Soil (1 ft)	12,000 c.y.	12.0	6.0	18.0
	Trees (incl. burn.)	5,000 tons	112.5	25.0	137.5
	Subtotal		167.7	52.6	220.3
S. E. Swamp	Dewatering (1 mo)	200,000 gals.	1.0	0.5	1.5
	Soil	4,000 c.y.	4.0	2.0	6.0
	Drums	—	10.0	5.0	15.0
	Subtotal		15.0	7.5	22.5
S. Boundary	Soil	300 c.y.	0.3	0.1	0.4
	Facilities	? tons	10.3	8.0	18.0
	Subtotal		10.3	8.1	18.4
Frontage	Soil	600 c.y.	0.6	0.3	0.9
Tanks	Water	600,000 gals.	4.0	4.0	8.0
	Tanks	? tons	36.0	18.0	54.0
	Soil	1,000 c.y.	1.0	0.5	1.5
	Subtotal		41.0	22.5	63.5
Offsite Ditch	Soil	1,000 c.y.	1.0	0.5	1.5
Ground water	Water	10 MM gals.	12.0	6.0	18.0
		TOTAL	366.1	159.8	525.9

TABLE 5
IN SITU CONTAINMENT COSTS
OLD INGER, LOUISIANA

AREA	QUANTITY OF FILL (C.Y.)	MATERIAL ($1,000)	EQUIPMENT ($1,000)	LABOR ($1,000)	TOTAL COST ($1,000)
Lagoon 1	40,000 (1)	140.0	60.0	30.0	230.0
Buried Waste Area	20,000 (1)	70.0	30.0	15.0	115.0
Swamp	200,000 (1)	700.0	160.0	40.0	900.0
Southeast Swamp	10,000 (1)	35.0	15.0	7.5	57.5
Southern Boundary and Frontage	10,000 (1)	35.0	15.0	7.5	57.5
Subtotal	280,000	980.0	280.0	100.0	1,360.0
Clay Cap	20,000	90.0	40.0	20.0	150.0
Cover	15,000	3.0	12.0	3.0	18.0
Vegetation	--	5.0	5.0	2.0	12.0
Well Sealing	--	1.5	3.0	1.5	6.0
Subtotal		32.0	20.0	11.5	73.5
TOTAL		1,079.5	340.0	126.5	1,546.0

(1) Using River Silt dredged near the site, compacted up to an elevation of 25 feet msl.

The onsite landfill and offsite disposal alternative would require additional costs for waste stabilization/solidification activities prior to disposal in a landfill.

Table 6 summarizes the cost associated with each alternative as well as public health considerations, environmental considerations, technical considerations, and public comments due to implementation. The capital cost for each alternative includes all operation and maintenance cost (labor, energy, etc) performed during the construction and operational period. The operational and maintenance cost listed in Table 6 includes long term monitoring and other post-closure requirements.

TABLE 6. SUMMARY OF COST AND EFFECTIVENESS OF ALTERNATIVES FOR OLD INGER (REGION VI)

ALTERNATIVE	(Cost $1000) Cap	O&M	PW	PUBLIC HEALTH CONSIDERATIONS	ENVIRONMENTAL CONSIDERATIONS	TECHNICAL CONSIDERATIONS	PUBLIC COMMENT	OTHER
CONTAMINATED LIQUIDS (Cost based on land treatment system)								
1. Carbon Adsorption (onsite)	481	NA	NA	No impact	Discharge to offsite surface water.	Optimize treatment process to meet State permit requirements.	Acceptable	
2. Deep Well Injection (offsite)	962	NA	NA	No impact	Hazardous liquids injected to Class III ground water.	Potential scheduling difficulties.	Acceptable	
3. No Action	NA	NA	NA	Degradation of alluvial aquifer.	Contaminated surface water will migrate offsite in future.	NA		
CONTAMINATED SOILS AND SLUDGES								
1. Onsite RCRA Landfill	1574	10	3605	Potential of levee instability.	Potential of levee instability.	Liquids and semi-liquids must be solidified.	Highly opposed (Site instability)	Non permanent remedy
° Waste Collection	526							
° In situ Containment	1546							
° Liquid Treatment (carbon ads.)	431							
° Monitoring	4077	-			Wetlands filling.	Scheduling difficulties.		
						High ground water.		
						Facility to be flood proofed.		

TABLE 6. FOR OLD INGER (REGION VI) (Con't)

ALTERNATIVE	(Cost $1000) Cap	O&M	PW	PUBLIC HEALTH CONSIDERATIONS	ENVIRONMENTAL CONSIDERATIONS	TECHNICAL CONSIDERATIONS	PUBLIC COMMENT	OTHER
2. Offsite RCRA Landfill	2726[A]	7	4671	Waste must be transported offsite		Liquids and semi-liquids must be solidified.	Acceptable	Non permanent remedy
° Waste Collection	526							
° In situ Containment	1546							
° Liquid Treatment (carbon ads.)	381							
° Monitoring		-						
	5179							
3. Onsite Land Treatment	621	10	2850	Air emissions must be reduced.	Wetland filling.	Treatability studies must be performed.	Acceptable	More permanent remedy
° Waste Collection	526							
° In situ Containment	1546							
° Liquid Treatment (carbon ads.)	481							
° Monitoring		-		Direct contact possible.	Metals remain in soils.	Adversely affected by raintall.		
	3174							
						Scheduling difficulties.		
						High ground water.		
						Land treatment system to be flood proofed.		
						2-4 years duration.		
4. No Action								
° Monitoring	12	7	77	Degradation of alluvial aguifer.				
				Direct contact.				

A. Cost based on transportation and disposal in unlined facility. However if offsite disposal were chosen, EPA would dispose at lined facility unless cost was prohibitive.

No Action

The following is an evaluation of the environmental performance on all site wastes for the no action alternative. As explained below, this alternative fails to eliminate the direct contact and migration of waste and therefore poses threats to public health and the environment in the short and long term.

(1) Lagoons - No action on the lagoons will cause degradation of offsite surface waters. Runoff from the lagoons once full, drains into the swamp and then goes offsite. Eventually the dikes surrounding the lagoons will break causing a spill that will severely affect offsite surface waters.

Since the lagoons are connected to the shallow aquifer, organics will continue to migrate into the aquifer at a significant rate. This contamination may eventually result in high concentration levels of contaminants offsite in all of the underlying aquifers since they may be interconnected.

(2) Buried Waste Area - The buried waste area and underneath the lagoons are the primary places where large amounts of contaminated soil are located. There will continue to be generation of contaminated leachate. Such leachate will be transported to the shallow ground water then most probably in the underlying aquifers.

(3) Tanks - The threat from the waste in the tanks lies primarily in direct contact with wastes from people climbing into them or affects to surface water if leaks should develop. The proposed IRM should remedy this problem.

(4) Swamp - Heavily contaminated soil and wood can produce significant amounts of seepage. Root systems provide vertical conduits for flow even though the swamp is underlain by clayey soils. Hydraulic pressure produced by the swamp can also induce ground water contamination.

As with the onsite landfill alternative, if the levee fails a major offsite release of hazardous compounds will occur.

COMMUNITY RELATIONS

Region 6 and LDEQ issued a joint press release to announce the public comment period, the public meeting, and the availability of the Feasibility Study Draft Final Report for public review.

Copies of the Draft Final Report were placed in three repositories in the immediate vicinity of the site and at the offices of LDEQ in Baton Rouge and EPA in Dallas. In addition, telephone courtesy calls were made by LDEQ to State and local elected officials and to interested citizens. The dates of the public comment period were from June 18, 1984, to July 9, 1984. A public meeting was held on June 21 at the Ascension Parish Courthouse East in Gonzalez.

A list of meeting attendees and a summary of comments received, is included in the Responsiveness Summary (Attachment 1).

CONSISTENCY WITH OTHER ENVIRONMENTAL LAWS AND REGULATIONS

An onsite landfill would be in full compliance with the technical requirements of 40 CFR Part 264 Subpart M. An onsite land treatment would be in full compliance with 40 CFR Part 264 Subpart N. Any material transported offsite would be in compliance with manifesting requirements for generators (40 CFR Part 262 Subpart B) and transporter regulations (40 CFR Part 263 Subpart B). The waste would be disposed in a RCRA permitted facility. Activities that are common for all alternatives will meet the technical requirements of RCRA. The deep well disposal alternative would dispose of the liquids at a permitted facility. Carbon adsorption discharge would meet the State's requirements.

Because the remedy is considered to be an interim measure, EPA is not making a final determination at this time with respect to disposal of the contaminated wood, necessity of treatment of the intermediate aquifer, or the level of treatment of the shallow aquifer.

Executive Order 11988, "Floodplain Management," is not applicable to the Old Inger site. Flooding does not occur due to protection from the Mississippi River levee system. The Ascension Parish Flood Insurance Study indicates the Mississippi River has a flood elevation of 34 feet and 36 feet above mean sea level for the 10-year and 100-year floods. These levels are below the elevation of the top of the levee adjacent to the site. Therefore, flooding in this area is limited to sheet flooding that is associated with main storm events.

The Corps has evaluated the site and determined that a permit is not necessary for any remedial action (attachments 2, 3 and 4). An assessment of the wetland was performed (see attachment 5). Although the wetland will be eliminated with any alternative that involves heavily contaminated soils and sludges collection, no other alternatives exist to adequately protect public health and the environment. The implementation of any of these alternatives (except no action) will improve the general environment of an area that is presently limiting to flora and fauna. The Corps (New Orleans District) will monitor construction activities onsite (such as excavation) to assure against levee failure.

RECOMMENDED ALTERNATIVE

Section 300.68 (j) of the NCP states that "The appropriate extent of remedy shall be determined by the lead agency's selection of the remedial alternative which the agency determines is cost-effective (i.e. the lowest cost alternative that is technologically feasible and reliable and which effectively mitigates and minimizes damage to and provides adequate protection of public health, welfare, or the environment)". Based upon the Remedial Investigation and Feasibility Study, EPA Region 6 and the State of Louisiana agree that carbon adsorption and discharge offsite of contaminated fluids and land treatment for heavily contaminated soils and sludges are the lowest cost alternatives which effectively mitigate and minimize the most immediate risks to public health and the environment and limits future risk of the migration of contaminated ground water. Decisions on the level of cleanup for the shallow aquifer, whether corrective action for the intermediate aquifer, and the contaminated wood remedy are necessary to protect public health and the environment are being deferred.

Contaminated Fluids

In comparison to the deep well injection method, the carbon adsorption provides equal protection for public health and the environment but is less costly (Table 6). Therefore, the carbon adsorption method is the cost-effective alternative.

Heavily Contaminated Soils and Sludges

In regard to the heavily contaminated soils and sludges, the land treatment and offsite disposal provide equal protection for the public health and environment. The onsite landfill is rated below the other two alternatives in this aspect because of the site's location. Levee failure in the future could lead to the site being flooded or even removed. Of the three options, the land treatment section is recommended because it is the lowest cost and it will more permanently degrade hazardous organic compounds.

Table 7 is a detailed cost estimate for the onsite land treatment alternative. Figures 4 and 5 show proposed site plans for this alternative.

TABLE 7
ONSITE LAND TREATMENT COSTS
OLD INGER, LOUISIANA

ITEM	QUANTITY	MATERIALS ($1,000)	EQUIPMENT ($1,000)	LABOR ($1,000)	TOTAL ($1,000)
Clay Barrier	24,000 c.y. (2 ft.)	109.0	48.0	24.0	181.0
Transfer Soils to Construction Treatment Zone	24,000 c.y. (2 ft.)	—	36.0	18.0	54.0
Drainage Control	—	2.0	10.0	8.0	20.0
Waste Application	12,000 c.y.	—	72.0	36.0	108.0
Soil Management	—	10.0	60.0	30.0	100.0
Air Monitoring	—	—	30.0	20.0	50.0
Monitoring Wells	—	5.0	3.0	2.0	10.0
Lysimeters	—	1.5	2.5	1.0	5.0
Closure	—	2.0	10.0	5.0	17.0
Miscellaneous	—	2.0	10.0	8.0	20.0
	Subtotal	131.5	281.5	152.0	565.0
Contingency (10 percent)					56.5
			Total		621.5

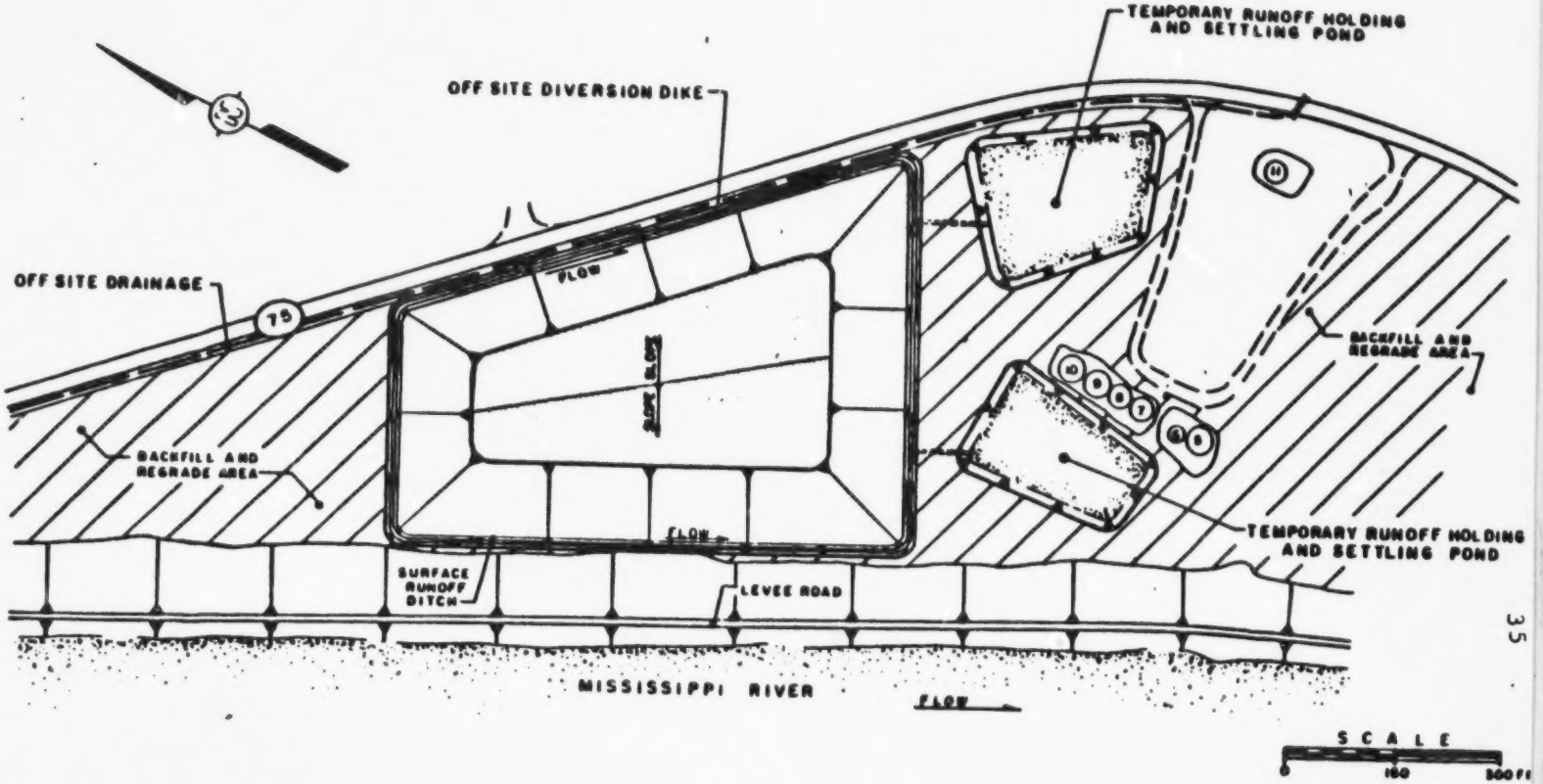

FIGURE 4

LANDFILL LOCATION

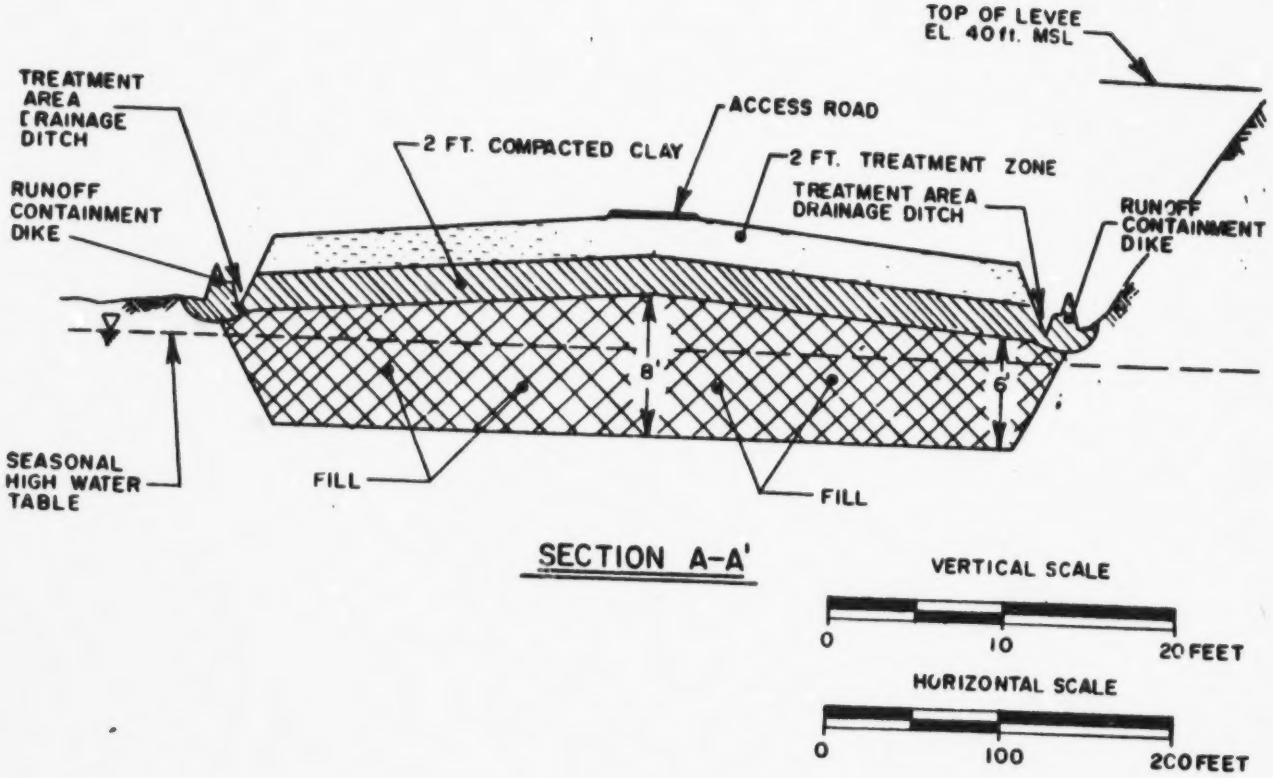

FIGURE 5

LAND TREATMENT CROSS SECTION
OLD INGER

OPERATION AND MAINTENANCE

Projected operation and maintenance activities for the selected alternative will include long-term soil monitoring and long-term ground water monitoring. Other post-closure activities include maintaining the run on/runoff system, maintaining the vegetative cover, and continuing operations to enhance degradation and transformation and sustain immobilization of the hazardous constituents in the treatment zone. EPA will pay 90% of the first year (after construction) share then the State will incur the monitoring costs thereafter. The LDEQ will be responsible for long-term monitoring. The source of Louisiana's match for O&M will come from its Hazardous Waste Site Cleanup Fund established July 16, 1983. This fund presently contains approximately five hundred thousand dollars.

SCHEDULE

Event	Date
° Approve Remedial Action (ROD)	September 1984
° IRM Completion	September 1984
° Complete Enforcement Negotiations	October 1984
° Award/Amend Cooperative Agreement for Design	November 1984
° Start Design (Includes pilot studies)	December 1984
° Complete Design	July 1985
° Award/Amend Cooperative Agreement for Construction	August 1985
° Start Construction	December 1985
° Complete Construction	December 1988

FUTURE ACTIONS

Further treatability studies will be performed for the contaminated fluids. These studies are being performed to optimize the treatment process, not to ascertain treatability of the fluids (previously concluded).

Attachment 1

RESPONSIVENESS SUMMARY

OLD INGER, LA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Ginger's Disk #16
Document #10

40

AUG 2 8 1984

Old Inger Responsiveness Summary

Kelcey Yarbrough, Project Officer
Policy & Design Section (6AW-SP)

Linda Garczynski, Zone Manager
State Programs Section (WH-548-E)

Thru: Bonnie J. DeVos Chief
Policy & Design Section (6AW-SP)

Original signed by
Bonnie J. DeVos

This memo is to confirm the transmission of the written comments from the Old Inger comment period on the Alternative Selection. These comments were discussed in a meeting between the State and SOS, a citizens group concerned about the site. We have reviewed these and agree with the responses. These were the only written comments received during the comment period.

Please contact me at FTS 729-9761 if you have any further questions.

6AW-SP:K.YARBROUGH:gr:X7-9761:8/27/84

	CONCURRENCES							
SYMBOL								
SURNAME								
DATE								

EPA Form 1320-1 (12-70)

OFFICIAL FILE COPY

Responsiveness Summary

The purpose of this document is to clarify some of the responses provided in the course of the July 26, 1984 meeting on the Feasibility Study for the Old Inger Site.

Major Issues

2. Although EPA may provide for additional opportunity for comment in certain cases, in commenting on the feasibility study the public should raise all the issues that can be raised at that time in order to assure that these comments are taken into account by EPA in selecting a remedial alternative. Failure to raise certain issues in commenting on the feasibility study may foreclose persons from raising those issues at a later date.

3. In accordance with Superfund community relations guidance, the confirmatory treatability study will be made available for the purpose of public information, rather than solicitation of public comment.

4. While the site is believed to be secure from levee failure for at least the next 50-100 years, it is difficult to predict whether changes in the river's course over a longer period may endanger the stability of the site.

Specific Issues

1. Under the selected remedial alternative, EPA will excavate the area near the levee to a sufficient depth to remove all the heavily contaminated soil. The slightly contaminated

soil near the levee and elsewhere on the site will be covered by backfill, and an impermeable cap. The decision to leave slightly contaminated soil in place in various areas of the site was based on the belief that when such soil is covered appropriately, it will not present a threat to health and the environment. Financial considerations were not the primary factor in the determination to leave some slightly contaminated material near the levee.

3. The number of borings at the site was determined on the basis of EPA's belief about what was adequate to assess conditions at the site. The cost-effectiveness criteria of Superfund does not directly apply to remedial investigation projects.

9. While EPA, in fact, considers other public health and environmental standards in determining what remedy is necessary to adequately protect public health and the environment, the current NCP (promulgated July 18, 1982) does not explicitly require EPA to consider these other standards. In addition, EPA may impose stricter standards at some Superfund sites if the situation warrants it.

SOS Comments--Old Inger Feasibility Study
July 26, 1984

Individuals Present at the Meeting, July 24, 1984:
Ross Vincent (Ecology Center, SOS Technical Consultant)
Ruby Cointment (SOS)
Teresa Robert (SOS)
Bill De Ville (DEQ)
George Cramer (DEQ)
Bob Jacobsen (D'Appolonia)
Press Campbell (D'Appolonia)
Hameed Elnaggar (GDC)
Miles Seifert (WH&A)

Ross Vincent, acting as technical consultant for Save Our Selves (SOS), presented comments on the Old Inger Feasibility document. Ms. Cointment and Robert offered supporting statements. Both broad and detailed issues were mentioned. Comments made and responses given are summarized below.

MAJOR ISSUES (BROAD)

1. [Comment ...Not sure whether sufficient data developed about geology and hydrology support conclusions shown in report.
[Response ...Site characterization is more than adequate. Actually had 21 boreholes for a 13 acre site. This is conservatively 40% greater borehole saturation than other Superfund sites. Further discussions of these points will be added to the document.

2. [Comment ...Concerned with possible close out of legal options at some future date through loss of standing by not taking complete advantage of the Administrative process at this time.
[Response ...Legal options are still open. Explained the four phase approach of a Superfund action. Information is conveyed to the public for their comment throughout each stage. Each site has its own community relations plan, geared to the needs of the area. This includes open public meetings, availability of information after it has been compiled, and reviews for comment by the public. Failure to comment completely at this stage in no way jeopardizes future rights towards legal action.

3. [Comment ...Concerned whether the document adequately proved that land farming was the best option. Why wasn't the pilot testing included in the Feasibility Study?
[Response ...The document makes a tentative land farming recommendation to be verified by further study in Phase III, Engineering Design. This testing was beyond the defined scope for Feasibility work. Plans have been made to coordinate pilot test design with experts from the LSU Institute for Environmental Studies. If these tests show landfarming to be unsuitable, another option will be chosen for definitive design. Also, after the landfarm pilot tests, a separate document will be generated and made available to the public for comment, before final implementation begins.

4. [Comment ...Concern expressed about the possibility of levee failure, similar to what happened downstream from the site.

[Response ...Actually, the Inger site is safer now from failure than 30 years ago. The report shows river cross sections taken at the failure location, and at the Old Inger site. These cross sections display totally different river flow patterns and depths near the bank. The river flow pattern adjacent to Old Inger is actually on the other side of the river bank, resulting in a slight build up of the channel on the Old Inger side, over the last 30 years. It was agreed the probability of failure was very low, and not a significant concern for the projected period of site work.

SPECIFIC ISSUES

1. [Comment ...(Section 3.2.2) Questioned why the document suggested not dealing with wastes close to the levee.

[Response ...It is technically feasible to remove wastes in this area. However, when the original levee stability work began, the depth of contamination in this region was unknown. Later results indicated required excavation work would be minor. However, any work within the proximity of the levee would be limited by the US Army Corps of Engineers, who have jurisdiction over the levee. It was felt the greatly added cost to deal with the levee was not justified considering the level of contamination. Given the minor levels of contamination, neither environmental concerns nor the cost effectiveness criterion mandated by the Superfund law would justify major expenditures for additional levee work.

2. [Comment ...Questioned the conclusion about the continuity of clay beneath swamp area. The swamp would be drained and filled for the landfarm operation. Questioned statement (p 4-3) "...do not pose threat", in reference to subsurface contamination beneath treatment area.

[Response ...Actually had 10 borehole samples around the perimeter of the swamp. Detailed analysis was made in the Phase I Remedial Investigation report. Agreed to make additional references to the Phase I report, to further clarify the reasoning behind the continuous clay layer conclusion. Further, the proposed design of the land treatment area, in any case, would add a layer of compacted clay beneath the treatment zone as additional protection from any vertical migration of contaminants.

3. [Comment ...Questioned why additional borings were not made.

[Response ...The cost effectiveness criterion of Superfund precluded additional boreholes. As stated previously, this site has a much higher borehole concentration than other Superfund sites. Based on best professional judgment, added borehole samples would not measurably change the conclusions about the continuity of the clay layer beneath the swamp.

4. [Comment ...Questioned how many firms bid on the project, and what were their qualifications.

[Response ...Six firms submitted proposals for the initial Remedial Investigation. Feasibility study work continued with the same contractors to provide continuity of effort. EPA approved this arrangement. State law precludes giving information about other bidder proposals or costs. Only the successful firms' proposals are open for public scrutiny. However, the selected proposal was also the lowest cost responsive proposal.

5. [Comment ...The document mentions the sale of scrap metal recovered. How will this be handled?

[Response ...Superfund law encourages resource recovery whenever possible to mitigate costs. Any materials recovered, e.g., metal scrap or fixtures, would be decontaminated before leaving the site.

6. [Comment ...Concerned with statements like "probable level of contamination is insignificant". What does this mean?
[Response ...Target levels of contamination are defined earlier in Chapter 2 of the document. Therefore, the use of terms such as "insignificant" is not subjective, but has a defined quantitative referrent. Agreed to further clarify meaning where used later in the study.

7. [Comment ...Didn't understand the meaning of "poor, fair, or good" when used in for various screening levels in determining the best cleanup strategy.
[Response ...Superfund Feasibility studies require various levels of screening, with different criteria being used for each finer level of discrimination. A technique that was judged good at a coarse level, may be deemed poor at a finer level, where more factors are used for determination. The relative ranking (poor, fair, good) is also a function of the waste location and concentration. It was agreed to further clarify this point in the document.

8. [Comment ...(pg 4-7) Didn't like wording in text referring to Lagoon 1.
[Response ...Agreed to clarify statement and improve wording.

9. [Comment ...(p 6-9) Questioned the statement "permitable NPDES levels", in reference to treated waters leaving the site.
[Response ...The National Contingency Plan requires relating emission levels, etc. to other Federal laws, such as, in this case, NPDES permitting standards and criteria. In practice, actual standards used for discharge will be more stringent than NPDES requirements, especially for toxics. Will clarify this in document.

10. [Comment ...(p 6-18) Is carbon adsorption to be used on all wastes at the site?
[Response ...Carbon adsorption will be used on all aqueous wastes leaving the site to ensure compliance with applicable discharge standards.

11. [Comment ...(p 6-19) What does the term "excessive odors" mean?
[Response ...The definition will be further clarified in the document.

12. [Comment ...(p 6-20) Landfarming is said to have been successfully used at oil refineries for years. Where is the data on degree of success, application rates and residue concentrations?
[Response ...Could not give data from individual refineries in a public document, because it is confidential information. However, two recent studies (K. Brown and ERT), document the effectiveness of landfarming in the public literature. Will further document these references, and give more information about residual contaminant levels in final document.

13. [Comment ...What is the biodegradation process (landfarming) and end products?
[Response ...Actual process and residual products with be further analyzed in the upcoming pilot study. Complete characterization of the

waste, beyond the presence of priority pollutant levels, will also be pursued in the next design phase. This will be clarified in the Feasibility document.

14. [Comment ...(p 8-3) Didn't like statement "long term impact virtually nonexistent".

[Response ...See previous discussions of target levels and strategies for stringent discharge levels to achieve objectives. This approach will result in no measurable impact upon the receiving water.

15. [Comment ...(p 8-11) What are the "effluent limits" used?

[Response ...Will cite effluent limits referenced in the document. Refer to previous discussions of objectives and targets concerning this point.

ATTACHMENT 2

53

48

DEPARTMENT OF THE ARMY
NEW ORLEANS DISTRICT, CORPS OF ENGINEERS
P. O. BOX 60267
NEW ORLEANS, LOUISIANA 70160

August 2, 183

Reply To Attention Of

Operations Division
Regulatory Assessment Section

Ms. Karen Solari
Emergency Response Branch (6ES-S)
U. S. Environmental Protection Agency
Region VI
1201 Elm Street
Dallas, Texas 75270

Dear Ms. Solari:

Reference is made to your request for a U. S. Army Corps of Engineers' Section 404 jurisdictional determination for the Old Inger Oil site in section 23 and 24, T. 10 S., R. 2 E., Ascension Parish, Louisiana (see attached map).

An onsite inspection of the property was made by helicopter on July 22, 1983 by a botanist from my staff. Based on this onsite inspection it has been determined that the entire waste disposal site is a wetland with the exception of a narrow border (about 25 feet wide immediately adjacent to the highway). The site, however, is not subject to Corps' Section 404 jurisdiction. A Department of the Army permit would not be required for the deposit of fill material on the waste disposal site.

Any questions concerning this determination should be directed to Dr. Mary L. Plumb-Mentjes at (504) 838-2292.

Sincerely,

Ronald J. Ventola

Ronald J. Ventola
Chief, Regulatory Functions Branch
Operations Division

Enclosure

Attachment 8

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ATTACHMENT 3

DEPARTMENT OF THE ARMY
NEW ORLEANS DISTRICT, CORPS OF ENGINEERS
P.O. BOX 60267
NEW ORLEANS, LOUISIANA 70160

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REPLY TO ATTENTION OF:

June 1, 1984

Surveillance and Enforcement Section
Operations Division

Mr. Robert W. Jocobsen
D'Appolonia Waste Management Service
8116 One Calais Avenue, Suite 20
Baton Rouge, Louisiana 70809

Dear Mr. Jacobsen:

This is in response to your letter of May 17, 1984, directed to Dr. Lloyd F. Baehr of our Regulatory Assessment Section, concerning the Old Inger Oil site in sections 23 and 24, T. 10 S., R. 2 E., in Ascension Parish, Louisiana.

We had examined this site in July, 1983 at the request of Karen Solari of the Environmental Protection Agency, and determined at that time that it was wetland, but not subject to U. S. Army Corps of Engineers' regulations because it is isolated and does not contribute to the riverine system. Our determination made at that time has been reviewed and still stands. A copy of our letter of August, 1983, to Ms. Solari is enclosed.

Should you have any further questions regarding this matter, please contact Dr. Thom Davidson at (504) 838-2270.

Sincerely,

Ronald J. Ventola

Ronald J. Ventola
Chief, Regulatory Functions Branch
Operations Division

Enclosure

Attachment 4

52

Davidson/WB/2270

September 13, 1984

Surveillance and Enforcement Section
Operations Division

RECEIVED
Sep 17 9 45 AM '84
EPA

Mr. Clinton B. Spotts
Environmental Protection Agency
1201 Elm Street
Dallas, Texas 75270

Dear Mr. Spotts:

This is with reference to our letter of August 2, 1983 directed to Mrs. Karen Solari of your agency concerning U. S. Army Corps of Engineer's jurisdiction at the "Old Inger Oil" location in sections 23 and 24, T. 10 S., R. 2 E., in Ascension Parish, Louisiana.

In clarification, the site is determined to be wetland. Discharge into this wetland is authorized by nationwide permit as specified in 33 CFR 330.4 (aX2) of our regulations dated July 22, 1982.

Should you have any additional questions regarding this matter, please contact Dr. Thom Davidson at (504) 838-2270.

Sincerely,

Ronald J. Ventola
Chief, Regulatory Functions Branch
Operations Division

FACSIMILE HEADER SHEET
(ER 105-1-5)

FROM (Name)	OFFICE SYMBOL	TELEPHONE NO.	RELEASER'S SIGNATURE
R. VENTOLA	LMNOD-S	1-504-838-2270	Thomas Davidson
TO (Name)	OFFICE SYMBOL	TELEPHONE NO.	# PAGES / PRECEDENCE / DTG
Clinton Spotts		1-214-767-2825	1 / 9/13/84

SUBJECT

ENG FORM 4197, MAR 83

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ATTACHMENT #5

OLD INGER SITE, LOUISIANA
ASSESSMENT OF WETLANDS

September, 1984

I. Purpose

The purpose of this report is to:

1) Review Executive Order 11990, May 14, 1977, 42 CFR 26961 entitled "Protection of Wetlands".

2) Review the Old Inger Remedial Investigation, Feasibility Study, and Remedial Alternative Selection for areas concerning wetlands. Personal communication with the State and Region were also utilized.

3) Review applicable Federal, State and local statutes involving wetland activities.

4) Review public comment on the wetland impact.

5) Summarize the impact on the wetland caused by remedial activities at the Old Inger site.

II. INTRODUCTION

Executive Order 11990, entitled "Protection of Wetlands" requires Federal agencies to take action to avoid adversely impacting wetlands wherever possible, to minimize wetland destruction and to preserve the values of wetlands. This order also emphasizes the importance of the evaluation and mitigation of impacts as well as early public review of plans involving action in public wetlands.

III. WETLANDS IDENTIFICATION

The Old Inger site has been classified as a wetland (except for the twenty-five foot highway border) by the New Orleans District Corps of Engineers. The following factors pertain to the site:

- Entire site area is 15 acres.
- 7.5 acres of site is a swamp.
- The wetland is isolated and is not riparian (connected to the river bank) because of the levee.
- Site soils belong to the Commerce silt loam soil classification.
- The typical area climate is humid, subtropical.
- The site is not in the 100 year floodplain of the Mississippi River because it is protected by the levee.

- The site is not in the 100-year floodplain of the Bayou Conway, though sheet flooding does occur during heavy rainstorms.
- Local residents have been reported to use the road ditch for crayfishing. The bordering Mississippi River (separated by a levee) also has recreational and commercial use.

There are large quantities of hazardous substances documented onsite. Because of this contamination, the site is limiting to flora and fauna with only mud turtles, minnows and wild herbacious weeds found onsite. Most of the trees onsite have already died probably as a result of flooding or high concentrations of hazardous substances. No endangered plant or animal species are found onsite. The site is not a unique habitat or vital to local populations. The site is located in the Mississippi fly-way for large numbers of migratory waterfowl and birds and as such poses a threat due to direct contact.

IV. ASSESSMENT OF ALTERNATIVES IMPACTS ON WETLANDS

The no-action alternative will continue to cause a threat to public health and the environment. Wastes will continue to leach into the shallow and intermediate aquifers if the waste source is not removed. A drinking water aquifer, underlying these two aquifers, is threatened by the continued downward leaching of the waste and could also become contaminated.

Contaminated surface water has the potential to migrate offsite during heavy rainfall. This migration may contaminate grazing cattle. Direct contact with the exposed waste onsite is a present threat.

No practicable alternative exists to preserve the existing wetland due to inadequate protection of public health and the environment. At a minimum, some removal of contamination must occur. The evaluated alternatives include excavating heavily contaminated soil and sludges, backfilling, and capping the site. These activities will have an adverse effect on the wetland by eliminating the majority of the wetland area but a positive effect on the general environment of the area by mitigating the threat to public health and the environment. Because the alternatives involve capping with a vegetative cover, a suitable environment will be created restorating some flora and fauna to an area that is presently limiting to wildlife.

V. APPLICABLE FEDERAL, STATE, AND LOCAL STATUTES

The following substantive requirements of the Department of Army's Nationwide Permits Program (33 CFR Part 330.4) will be met for each evaluated alternative (except no-action). These requirements involve the filling (discharge) in non-tidal waters of the United States that are not part of a surface tributary system to interstate waters or navigable waters of the United States.

- Discharge will not be located in the proximity of a public water supply.
- It is unlikely that the discharge will destroy threatened or endangered species or destroy or modify the critical habitat of such species. The discharge will protect them from direct contact with hazardous materials.
- Discharge of material will consist of suitable material free from toxic pollutants in toxic amounts.
- Fill created from discharge will be properly maintained.
- Discharge will not occur in a component of the Natural Wild and Scenic River System.
- Best management practices will be implemented.

VI. PUBLIC COMMENT

The proposed remedial alternatives, involving filling of the wetland, were presented to the public during the public comment period (June 18, 1984 to July 9, 1984). A public meeting was conducted June 21, 1984, at which time no public opposition to the wetland filling was made. No written comment received to date have expressed any negative comments concerning the filling either.

VII. SUMMARY

Any alternative proposed for Old Inger that will adequately protect public health and the environment will cause adverse effects to the wetland by eliminating most of the wetland area. Since the wetland also threatens or is limiting to flora and fauna, the elimination of the wetland will have a positive affect on the environment by providing an environment similar to areas located near the site. A maintained cap over the site will be similar to grazing lands adjacent to the site and common locally. The public was not opposed to the alternatives involving filling of the wetland.